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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,281	07/11/2003	Anthony G. Day	GC773-2	4808

7590 12/07/2005

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EXAMINER	
MOORE, WILLIAM W	
ART UNIT	**PAPER NUMBER**
1656	

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,281	DAY ET AL.	
	Examiner	Art Unit	
	William W. Moore	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *2-16 and 18-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2004 09 30*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election

Applicant's election **with** traverse in the Response filed 11 October 2005 of Group 11, claim 1, wherein the elected protease comprises the amino acid sequence of SEQ ID NO:11, is acknowledged. Applicant does not traverse the restriction requirement between inventions of Groups 11, 379, 471 and 563 and inventions of Groups 1-10, 12-378, 380-470, 472-562, and 564-736, traverses the requirement as among Groups 11, 379, 471, and 563, arguing that a search for, and examination of, methods of claims 17-19 utilizing either a polypeptide having the amino acid sequence of SEQ ID NO:11 in a method of treatment or a polynucleotide encoding SEQ ID NO:11 in either of two methods of diagnosis present no "serious burden to the Examiner".

The traversal is not persuasive with respect to inventions of Groups 471 and 563 because neither claim 18 nor claim 19 involve the use of a protease having the amino acid sequence of SEQ ID NO:11. Instead, both involve the use of nucleic acid sequences where claim 18 involves use of an unspecified "probe" that cannot encode a polypeptide because it must hybridize to a coding sequence and claim 19 requires that an unspecified fragment of one coding sequence be compared with an unspecified fragment of another coding sequence. Applicant's argument is persuasive, however, with regard to the invention of Group 379, because Groups I and 379 both raise very similar issues of lack of utility, lack of enablement, and inadequate written description. Thus claims 1 and 17 are examined herein to the extent that they describe the claimed *in vitro* and *in vivo* methods use of a protease comprising the amino acid sequence set forth in SEQ ID NO:11. The requirement for restriction between Groups 1 and 379, on the one hand, and Groups 1-10, 12-378, and 380-736, on the other hand, is still deemed proper and is therefore made FINAL.

Priority

Applicant's claim in the Declaration of Inventorship filed with the specification on 11 July 2003, and at page 1 of the specification, to priority under 35 U.S.C. § 119 of the 12 July 2002 filing date of the parent provisional application serial No. 60/395,325, is hereby acknowledged.

Preliminary Amendment

Applicant's Preliminary Amendment to page 64 of the specification filed 4 June 2004 has been entered and does not add any new matter to the disclosure.

Information Disclosure Statement

Applicant's Information Disclosure Statement [IDS] filed on 20 September 2004 is hereby acknowledged. It is noted that several citations of non-patent publications are lined-through on the accompanying, executed, PTO Forms-1449 because a citation fails to conform to requirements of MPEP § 609 due to the lack of either a specific page citation, a specific publication year, or both.

Objection to the Specification

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code at page 12. Applicant is required to delete the embedded hyperlink. See MPEP § 608.01.

Claim Rejections - 35 USC § 101

35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 and 17 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility.

A claimed invention must posses a specific, substantial and credible *in vitro* or *in vivo* utility, but the instant application cannot identify any specific, substantial, utility for

the invention described by the claims known to the inventors at the time the application was filed. It is agreed that the polypeptide having the amino acid sequence set forth in SEQ ID NO:11 shares a significant degree of amino acid sequence homology with other human serine proteases. See, Auffray et al., EMBL/GenBank/DDBJ Accession No. Q9NPM1 and Strausberg et al., EMBL/GenBank/DDBJ Accession No. Q6PCB6, made of record herewith where the latter, though not in the prior art, indicates that SEQ ID NO:11 is the carboxyl-proximal portion of a 358-amino acid serine esterase. See also, SEQ ID NO:4 of Jackson et al., US 2004/0101930.

Claim 1 lacks utility, however, because the specification discloses no specific *in vitro* utility for a protease having the amino acid sequence of SEQ ID NO:11, whether in cleaving any particular substrate or in treating any particular disease or condition. There is no disclosure in the specification of any protein that a protease comprising the amino acid sequence of SEQ ID NO:11 cleaves any particular protein nor is there any disclosure of even a peptide substrate that a protease comprising the amino acid sequence of SEQ ID NO:11 might recognize and cleave. Similarly, claim 17 lacks utility because the specification discloses no specific *in vivo*, therapeutic, utility in treating a disease or disorder for a protease comprising the amino acid sequence of SEQ ID NO:11 because the specification nowhere establishes a nexus between the undisclosed cellular or physiological activity of the protease and any particular disease or disorder. While the specification proposes diverse abnormal conditions for which a protease comprising the amino acid sequence of SEQ ID NO:11 might be administered at page 20, this assertion is not specific, but diffuse, indicating that Applicant knew of no specific utility for that would permit an immediate therapeutic use by the public of a protease comprising the amino acid sequence of SEQ ID NO:11 at the time the application was filed. A method of use of a material for further research to determine, e.g., its specific

biological role, thus identifying or confirming a "real world" context for its use, cannot be considered to be a "substantial utility". *Brenner v. Manson*, 383 U.S. 519, 148 USPQ 689 (Sup. Ct. 1966). Mere allegations of prospective, potential, utilities cannot rise to the level of credible assertions of specific *in vitro* and *in vivo* utilities that are substantial. This is clearly evident where the specification provides no indication of the nature of proteins or peptides that might be cleaved by a protease comprising the amino acid sequence of SEQ ID NO:11, and where the artisan and the public cannot know whether any of the diseases and disorders suggested at page 20 of the specification might be treated by administration of a protease comprising the amino acid sequence of SEQ ID NO:11 or whether some other disease and disorder not mentioned in the specification might instead be treated by administering a protease comprising the amino acid sequence of SEQ ID NO:11.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 17 are also rejected under 35 U.S.C. § 112, first paragraph. Specifically, since the claimed invention is not supported by either a **specific** asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention in practicing claimed methods.

Claims 1 and 17 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim 1 reaches methods of cleaving unspecified, generic, peptide bonds, and claim 17 reaches methods of treating unspecified, generic, diseases or disorders, but

neither the claims nor the specification describe any particular substrate of the protease having the amino acid sequence of SEQ ID NO:11 nor describe any particular disease or disorder that somehow is associated with an undisclosed physiological activity of the protease having the amino acid sequence of SEQ ID NO:11. The specification neither exemplifies or suggests a method of cleaving any particular protein or peptide using a protease comprising the amino acid sequence of SEQ ID NO:11 according to claim 1 and neither exemplifies or suggests a method of treating a particular disease or disorder using a protease comprising the amino acid sequence of SEQ ID NO:11. "While one does not need to have carried out one's invention before filing a patent application, one does need to be able to describe that invention with particularity" to satisfy the description requirement of the first paragraph of 35 U.S.C. § 112. *Fiers v. Revel v. Sugano*, 25 USPQ2d 1601, 1605 (Fed. Cir. 1993). The specification's treatment of the subject matters of claims 1 and 17 requiring a protease comprising the amino acid sequence of SEQ ID NO:11 is considered to be entirely prospective where skilled artisans in the relevant field of molecular biology could not predict the nature of a particular substrate of the protease or the nature of a particular disease or disorder that might be treated by administering the protease.

Claims 1 and 17 are rejected under 35 U.S.C. § 112, first paragraph, because the specification does not reasonably provide enablement for identification of any particular substrate for the protease comprising the amino acid sequence of SEQ ID NO:11, nor does it reasonably enablement for a treating a particular disease or disorder by administering a protease comprising the amino acid sequence of SEQ ID NO:11. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the methods of claims 1 and 17 commensurate in scope with these claims.

Claims 1 and 17 contemplate unlimited and unguided experimentation in the quests to identify something that a protease having the amino acid sequence of SEQ ID NO:11 might cleave and to identify a specific disease or disorder with which a protease having the amino acid sequence of SEQ ID NO:11 is associated, where the specification

provides no indication of the cellular or physiological role of the protease. Indeed, the specification fails to suggest even the "conditions" necessary for practice of claim 1 "wherein the protease hydrolyzes at least one peptide bond" in any protein. The specification also fails to teach how a protease having the amino acid sequence of SEQ ID NO:11 might be "administer[ed]" in order to treat the undisclosed "disease or disorder" It is well settled that 35 U.S.C. § 112, first paragraph, requires that a disclosure be sufficiently enabling to allow one of skill in the art to practice the invention as claimed without undue experimentation and that unpredictability in an attempt to practice a claimed invention is a significant factor supporting a rejection under 35 U.S.C. §112, first paragraph, for non-enablement. See, *In re Wands*, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (discussing factors relevant to the analysis of enablement). Applying the factors discussed in *Wands* to Applicant's disclosure, it is apparent that:

a) the specification lacks adequate, specific, guidance for identifying a substrate for the protease having the amino acid sequence of SEQ ID NO:11 that might permit the practice of a method recited by claim 1 and lacks adequate, specific, guidance for identifying a cellular or physiological role for the protease having the amino acid sequence of SEQ ID NO:11 that might permit the practice of a method recited by claim 17,

b) the specification lacks working examples wherein a substrate for the protease having the amino acid sequence of SEQ ID NO:11 is identified that might permit the practice of a method recited by claim 1 and lacks working examples wherein a cellular or physiological role for the protease having the amino acid sequence of SEQ ID NO:11 is identified that might permit the practice of a method recited by claim 17,

c) in view of the prior art publications of record herein, the state of the art and level of skill in the art do not support such undirected and undue experimentation, and,

d) unpredictability exists in the art where no substrate has been identified for a protease having the amino acid sequence of SEQ ID NO:11 and no cellular or physiological role has been identified for the protease having the amino acid sequence of SEQ ID NO:11.

Thus the scope of subject matters of the non-specific methods embraced by claims 1 and 17 requiring use of a protease having the amino acid sequence of SEQ ID NO:11 is

unsupported by the present specification even if taken in combination with teachings available in the prior art.

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in reciting "a desired protein" because the public and the artisan seeking to establish the metes and bounds of the intended subject matter cannot determine, either on the basis of the claim or the disclosure of the specification, which protein(s) is "desired" and which is/are undesirable.

Claim 17 is indefinite in reciting "administering to a patient in need of such treatment" because the public and the artisan seeking to establish the metes and bounds of the intended subject matter cannot determine, either on the basis of the claim or the disclosure of the specification, which patients might "need such treatment" from the patients, or the general population, which needs no such treatment.

Conclusion

The subject matter of claims 1 and 17 herein is free of the prior art because neither Auffray et al. nor Strausberg et al. teach or suggest a physiological or cellular activity of, nor a substrate for, a protease comprising an amino acid sequence that differs from SEQ ID NO:11 herein only in having a single additional amino acid present, between positions 235 and 236 therein. Jackson et al., US 2004/0101930, likewise fail to teach or suggest any physiological or cellular activity of, or substrate for, a secreted protease having the amino acid sequence of their SEQ ID NO:4 that shares 90% identity with SEQ ID NO:11 herein. The later publications of Tang et al., WO 2003/080795 and WO 2004/080149, Bodary et al., WO 2004/028479, and Smith, WO 2004/013319, are made

of record herewith as pertinent to Applicant's disclosure. The publication of Bodary et al. is supplied only in pertinent part: pages 1-202 and Figure 1607.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William W. Moore whose telephone number is 571.272.0933 and whose FAX number is 571.273.0933. The examiner can normally be reached Monday through Friday between 9:00AM and 5:30PM EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisory Primary Examiner, Dr. Kathleen Kerr, can be reached at 571.272.0931. The official FAX number for all communications for the organization where this application or proceeding is assigned is 571.273.8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571.272.1600.

William W. Moore
27 November 2008

NASHAAT T. NASHED PHD.
PRIMARY EXAMINER